

Ecological Amnesia and the Path to Ecocide: Biotechnological Practices in Margaret Atwood's *Oryx and Crake*

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Abstract

Margaret Atwood's *Oryx and Crake* predominantly represents transhumanist biotechnological practices through corporate laboratories to eradicate human limitations. Such Corporate biotechnological practices create ecological amnesia. This refers to the lack of ecological wisdom and awareness when creating artificial species in corporate laboratories. It ignores the interconnectedness of humans, animals, and plants to maintain a balanced ecosystem. Drawing on Rosi Braidotti's critical posthumanism, N. Katherine Hayles' notion of disembodied information, *Techno-Humanism: Requiem for the Cyborg* by Timothy Lenoir, and Isabelle Stengers' slow science, the studies trace a causal pathway. Initially, *Oryx and Crake* presents engineered species such as Pigoons, ChickieNobs, and Crakers that lack evolutionary lineage, making them patentable and functional entities. This paper examines the consequences of ecological erasure on ecosystem; resulting to the fragile simulated environment. This ultimately leads to ecocide. To address the potential risks caused by corporate biotechnology. The research also analyses the 2025 IUCN synthetic biology policy, the Nagoya Protocol, and the Kunming-Montreal Global Biodiversity Policy and proposes a normative ethical framework called ecological memory ethics. This paper not only predicts the possible warning of transhumanist biotechnology, but also offers an ethical framework for maintaining long-term ecological accountability.

Keywords: Biotechnology, Ecological Amnesia, Ecocide, Transhumanism, Genetic Engineering, Biocapitalism, *Oryx and Crake*.

Introduction

In Margaret Atwood's *Oryx and Crake*, the narrative explores the impact of bioengineering practices, particularly through biotechnological projects like OrganInc, Paradise, and RejoovenEsence. Such projects are presented as a solution to the ecological crisis, human flaws, and diseases. For Instance, OrganInc Farms creates Pigoons to “enhance the assortment of foolproof human-tissue organs in a transgenic knockout pig host — organs that would transplant smoothly and avoid rejection” (Atwood 25). Similarly, RejoovenEsence asserts that it can provide a solution to illness and the aging process; meanwhile, Paradise aims to eradicate human “design flaws” including racism, social hierarchy, and sexual jealousy (358-59). These biotechnological practices are grounded in a transhumanist perspective, which advocates for transcending biological limitations through technological enhancements. This concept reflects a prioritization of optimization over relational embodiment, presenting a potential consequence of such advancement on human and nonhuman identity.

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This paper argues that *Oryx and Crake* presents bioengineering practices as a generating factor of 'ecological amnesia.' This is characterized by a complete absence of ecological wisdom in biotechnological practices when creating artificial species in corporate laboratories. This amnesia neglects how humans, animals, and plants coexist within the environment to sustain a balanced ecosystem. Crake, the genius bioengineer in the novel, epitomizes this systemic failure, as his attempt to transcend human limitations, but ignores the interconnectedness of all living and non-living entities. His engineered species like Pigoons, Crakers, Rakunks, and ChickieNobs are incapable of functioning within the real ecosystem and attempt to replace relational and historically rich environments with one that is proprietary, optimized, and forgetful, culminating in ecocide.

Ecological amnesia is not the endpoint of this paper. This paper explores the concept of ecological amnesia as a critical issue that contributes to creating ecocide while ignoring ethical considerations. Ecocide refers to the widespread and long-term destruction of the environment, where species and ecological relationships cannot be sustained longer. This phenomenon is exemplified in Atwood's *Oryx and Crake*, where ecological amnesia is manifested through the Red Death Plague. This plague leads to significant human population decline and the collapse of engineered ecosystems, which have already ignored and deviated from their evolutionary roots and relational complexities. This paper underscores the importance of utilizing ethical components in order to prevent such catastrophic consequences.

Considering *Oryx and Crake* as a diagnostic criticism rather than a prophetic warning, this paper investigates how transhumanist biotechnology causes ecological amnesia. It argues that unchecked technoscientific enhancement disregards ecological and cultural connection with living species. To address such challenges, the paper introduces an ethical framework called ecological memory ethics as a governance layout that aims to reduce the risk of ecological amnesia and mitigate the risk of ecocide by taking reference with Rosi Braidotti's critical posthumanism, Stengers' concept of slow science, and insights from recent ecological memory ethics. The paper underscores the importance of maintaining ecological and cultural continuity in the face of rapid technological advancement.

Literature Review

Scholars have examined biocapitalism and commodification of life in Atwood's novel. Swagata Singha Roy draws attention to "unrestricted commodification of life" through biocapitalism leading to ecological collapse (107). Roy aligns Atwood's fiction with thinkers like Braidotti, Rose, and Rajan regarding how genetic science combined with neoliberal markets

reconfigures life as data, property, and profit. Roy's analysis demonstrates how corporate spaces apply as an argument that "if biology is conceptually reduced to bio machine, as data, life gets reduced as informatics and consequently modifiable as data, as it is quantifiable and therefore marketable and has fiscal value" (112). Roy examines Pigoons and ChickieNobs, demonstrating how biocapitalism reduces nonhuman life to medium and destroys ethical boundaries between humans and animals. He further explains the concept of posthuman morality by pointing to relational and emotional forms of existence.

Melinda Cooper defines biocapitalism through an examination of genetic and reproductive material as a foundation for capital accumulation. The neoliberal bioeconomy sees capitalism seeking to overcome limitations through biological regeneration, developing robust alliances between "state-funded research, the market in new technologies, and financial capital" (3). The neoliberal view considers life as an unlimited resource, whereas biotechnology aims to transcend all "all limits to growth—from the waste products of industrialism to the very finitude of the earth" (18). She critiques the concept of biocapitalism through economic surplus and speculative value. It clearly highlights a notable research gap on amnesiac subjectivity.

Chung-Hao Ku explored the blurred line between humanity and monstrosity through corporate laboratories engaging in a symbiotic relationship where "science colludes with capitalism," leading to a "monstrous form of homo faber" (107). Ku analyses how scientific labs depict their advancements as progress while they contribute to a "biological wasteland," rendering human organs commodifiable. Furthermore, he examines the "monstrous" nature of transgenic entities and critiques the reckless use of "techno-scientific capitalism" (130).

Roy, Cooper, and Ku critique the transformation of living organisms into proprietary commodities under capitalism. However, their analysis emphasizes commodification rather than examining the underlying mechanisms that lead to ecological amnesia. They fail to explore how proprietary engineering sidelines relational embodiment and ecological continuity. Roy presents corporate biotechnology leading to "affective, cognitive and even ontological reduction of living organisms" (113), but this reduction is the outcome of a biocapitalistic framework. This study contends corporate labs actively create ecological amnesia through erasure of evolutionary and cultural memory, disconnection of human-animal relationships with ecology.

Alisha Dahal examines Atwood's novel as a dystopian critique against human exceptionalism and technological hubris, focusing on Crake as a symbol of homo faber in quest of redesigning life through scientific know-how. Dahal argues "Homo sapiens' unlimited desires and

aspirations for enhancement and excellence have driven humans to enact the Creator" (2). Crake's genetic work transgresses natural evolution, creating Crakers by "challenging the natural evolutionary process" (3). Dahal notes ecology primarily damaged background where "modern science and technology distort the symbiosis and disfigure the humans resulting in unwanted negotiations for survival" (6).

J. Brooks Bouson examines contemporary issues like biotechnology, bioterrorism, and a posthuman future based on Atwood's representation of an emerging "age of biological control" (140). Bouson examines a critique of biotechnology and technoscientific hubris in a dystopian warning against unchecked genetic engineering. However, while illustrating scientific imperialism and ethical collapse, it tacitly reveals transhuman logic and ecological discontinuities. Bouson emphasizes possibility where "corporations can own, patent, and commodify technologically designed species" (139). Crakers are described as "living results" of Crake's theories, not developed through ecological coevolution (150). Bouson defines Crake as a "scientist-imperialist" using science to control and redesign rather than understand the natural world.

Yet Dahal and Bouson do not examine corporate laboratories operating from a transhuman perspective, replacing lived ecological cocycle with proprietary engineered organisms. Dahal falls short in theorizing subjectivity as a biocapitalist product formed by technoscientific infrastructure, nor uses Braidotti's posthumanism to critique ontological contradiction between transhuman optimization and embodied, situated subjectivities. This gap allows the present study to move beyond ethical irony and humanist critique toward ecological memory, biocapitalist subject formation, and posthuman relational embodiment.

Coral Ann Howells explores theocratic dystopian knowledge in *The Handmaid's Tale* to apocalyptic state in *Oryx and Crake* caused by biocapitalism. Howells demonstrates a shift from theocratic control to a world "defamiliarised not through military or state power but through the abuse of scientific knowledge" (163). Gerry Canavan examines "suicidal logic" of global capitalism, displaying corporate labs as engine of "Ecological Apocalypse," not only inevitable but intentional (139). Canavan draws from Fredric Jameson's assertion that it is easier to imagine the end of the world than the end of capitalism.

Howells and Canavan analyze how the logic of capitalism leads to environmental destruction. However, Howells emphasizes loss of "distinctively human qualities" like "passion and Imagination" (171), failing to examine through Braidotti's posthuman lens, which critiques engineered subjectivity as failure of relational embodiment. Canavan examines ecological

perspective and anticapitalist dimension but does not examine how the transhuman project creates ecological amnesia, severing species from evolutionary and cultural histories.

Lee Frew argues novel "largely conforms to conventions of the wild animal story" (199), though "upgrades" genre to examine total death of nature and end of national sovereignty (204). Frew's paper correctly points to the symbolic function of species representing "monstrous hybridity" (210). Jovian Parry represents the ecological significance of meat to continue cultural relationship with eating, critiquing bioengineered consumption because corporate labs portray "risk-reflexive, consumer-driven" society (241). Parry examines engineered organisms alienating consumers from the natural life of animals.

Sławomir Koziół interrogates the human as a form of art, arguing creation of Crake's Crakers becomes a radical aesthetic project. Crake's manipulation of DNA represents transgenic bio-art, aligning with Eduardo Kac's work. Koziół argues Crake's creative and destructive aspirations place him in the category of literary mad scientists like Frankenstein.

Michael Reiss and Roger Straughan highlight the shift from traditional biotechnology to market-driven genetic engineering. Their analysis addresses "intrinsic problems of genetic engineering," precisely the relation between "natural versus non-natural" and "ecological holism versus materialistic reductionism" (709). However, they do not examine how stewardship mentality develops into transhuman logic deliberately obliterating evolutionary histories of species.

Existing scholarship has examined *Oryx and Crake* from the perspectives of transhumanism, biocapitalism, the commodification of life, dystopian warning, apocalypses and human collapse, and eccentric and colonial readings. However, it often fails to analyse the actual mechanisms behind this destruction in *Oryx and Crake*. At the same time, no one examines Crake's bioengineering projects as part of transhumanism. Finally, what remains unexplored is not only the diagnosis of corporate development in the novel but also the ethical tools to govern biotech practices. Thus, I fill this gap by introducing ecological amnesia as a mechanism of ecological collapse in *Oryx and Crake* and ecological memory ethics as a solution to govern biotech in an ethical way.

Theoretical Frameworks

The research is grounded in various interrelated theoretical approaches, such as Rosi Braidotti's critical posthumanism, N. Katherine Hayles's Posthuman Informatics, cultural AI Studies by Jonathan Roberge and Michael Castelle, and Techno-Humanism: Requiem for the Cyborg by Timothy Lenoir.

Rosi Braidotti's Posthuman Theory

Braidotti develops a critical posthumanist philosophy that challenges both humanism and transhumanism. She critiques the concept of liberal humanism as autonomous, rational, and self-contained, and proposes a relational, embodied, and ecologically embedded form of subjectivity based on a “nature-culture continuum”, by rejecting the explicit separation of the “categorical distinction between the given (nature) and the constructed (culture)”, in favor of a “monistic philosophy, which rejects dualism, especially the opposition nature–culture, and stresses instead the self-organizing (or auto-poietic) force of living matter” (Braidotti 2). This lens is particularly critical of “advanced capitalism and its bio-genetic technologies” (7). Advanced capitalism commodifies life – the “genetic code of living matter – ‘Life itself’” – and Braidotti proposes turning the vital force of zoe-centered rationality into “genetic capital” for an ethical alternative (Braidotti 59). By considering biological progress as proprietary resources, bio-capitalism develops a perverse form of the posthuman where species are enhanced and exploited.

In the context of *Oryx and Crake*, this lens illuminates how corporate laboratories interrupt ecological and cultural continuity, replacing a relational ontology with a technocratic rationality that treats life as a manipulable, proprietary product. This systemic commodification results in what can be termed an ecological amnesia, where the evolutionary histories and interspecies solidarity of organisms are erased by the logic of the market. Furthermore, subjectivities formed within these corporate systems reflect a biocapitalist design rather than Braidotti's model of relational embodiment, which insists on an embodied, embedded subject that is ethically accountable to both human and non-human others. Ultimately, Braidotti's posthumanism provides a critical tool to examine the novel's portrayal of how life is severed from its ecological and historical roots when subjected to the imperatives of neoliberal transhumanism.

***How We Became Posthuman* by N. Katherine Hayles**

Hayles's work, *How We Became Posthuman*, explores the concept of how the liberal humanist theme of need unfolds historically and conceptually in the posthuman context through the lens of cybernetics and informatics. According to Hayles, the posthumanist notion privileges information over materiality, treating the body as a prosthesis and biological existence as a framework of data rather than a physical necessity. This theory points out a crucial shift in the twentieth century where the “erasure of embodiment” (Hayles 5) becomes a key feature in scientific and cultural discourse, a perspective where the human body is reduced to “essentially an informational pattern rather than an embodied enaction” (xi). Finally, the

posthuman notion is not considered a stable entity, but an amalgam, a collection of heterogeneous components, a material-informational entity whose boundaries undergo continuous construction and reconstruction (3).

In my study, this theory provides a critical lens to identify which contemporary systems would be suitable to implement a regime of computation that values an information pattern over a material substrate. Hayles's theory of subjectivity works with the articulation of pattern and randomness to investigate how the posthuman subject is produced through the examination of human and nonhuman actors within a cybernetic loop. This framework deconstructs that bodiless exultation of technological transcendence and instead commands a reflexive understanding of how informatics is encoded into materiality through the construction of modern identity.

Techno-Humanism: Requiem for the Cyborg by Timothy Lenoir

This paper utilizes the concept of techno-humanism to examine the changing patterns from the 20th-century cyborg to the technoscientific project and design of the 21st century. Lenoir's notion of techno-humanism demands the transition of contemporary technoscience to critical practice involving the material infrastructure. Lenoir argues that these analyses often rely on a "disembodied" view of information from early cybernetics, which has already been replaced by second-generation AI researchers who prioritize embodiment and situatedness. He draws attention to a significant change in which developments in biomedicine, nanotechnology, and evolutionary robotics are erasing the distinctions between biological beings and machines.

Ultimately, Timothy Lenoir's techno-humanism perspective builds a theoretical foundation to critique corporate technoscience. In this view, corporate laboratories in *Oryx and Crake*, such as OrganInc and RejoovenEsense, treat life and human flaws as biological design flaws to be rectified through genetic re-design and engineering. In the paper, Lenoir argues that the conventional cyborg is being replaced by a modern technoscientific configuration where subjectivity transforms into biomedicine. This lens aligns with the novel's engineered organisms like Pigoons and Crakers, which are seen not just as a hybridity of human and machine but as proprietary technologies that transform information into physical and marketable products.

Cultural AI Studies by Jonathan Roberge and Michael Castelle

Roberge and Castelle introduce the primary philosophy "end-to-end sociology" of artificial intelligence in *The Cultural Life of Machine Learning* (1). This philosophy rejects the

traditional dichotomy between “upstream” technical genesis of algorithms and their “downstream” social consequences (3), instead assuming machine learning is a site of deep socio-technical “explicit entanglement”. By framing ML as “agents for epistemology and, increasingly, ontology”, it is a potential framework to describe how computational models not only describe reality but also actively determine and restructure social reality (2). The paper reads AI not as a neutral tool, but as a culturally located force that renders biases and uncertainties constitutive elements of a new computational set of truth by exposing the “black box” of algorithmic logic and underscoring the “epistemological duct tape” that underlies its cultural authority (7).

Textual Analysis

The tension between human-centered transhumanist enhancement and systemic optimization is not merely theoretical; modern technological trajectories such as Artificial Intelligence, Deep Neural Networks, and Machine Learning are making systems more complex, introducing emergence and opacity that transcend direct human oversight and shifting the trajectory from the classical transhumanist concept of intentional self-transformation to modern transhumanist practices of systematic optimization. While classical transhumanist assumptions consider transhumanism a human-centered vision of rational self-directed enhancement—defined by Nick Bostrom as “a conservative extension of traditional ethics and values to accommodate the possibility of human enhancement through technological means” (110)—the contemporary AI trajectory disrupts these foundational assumptions as it moves from universal to elite, from tool to system, and from enhancement to dependency. In this post-classical logic, which views life as an information pattern to be optimized and renders evolutionary history as noise, the human becomes a technological platform rather than an autonomous subject, a data set that needs to be optimized for maximum longevity, processing speed, and efficiency. This development transforms autonomy and meaning into an externally designed system, thereby endangering the humanist values that transhumanism originally aims to promote, while operationalizing via opaque and emergent systems that undermine the very human agency that traditional transhumanism claims to empower. Ultimately, as Grayson Cooke notes, “the end of the human cannot be imagined without the end of technics” (108), suggesting technological transcendence may mean not human flourishing but human obsolescence, because the aspiration to transcend human limitations through maximum corporate efficiency and AI optimization unexpectedly erases the very conditions—struggle, mortality, desire, conflict—that produce culture and meaning.

Corporate Laboratories as Biopolitical Institutions

A further implication of this shift can be understood through Michel Foucault's concept of biopower, which provides the perfect perspective for understanding the shift from individual enhancement to systemic optimization by managing health, reproduction, and mortality (Foucault 243). When corporate algorithms and artificial intelligence manage the human body, health, and evolution, the body automatically becomes a "docile body" (243) rendered not as an end in itself but instrumentalized to ensure the human component remains compatible with the broader technoscientific structure. In Margaret Atwood's *Oryx and Crake*, corporate laboratories such as OrganInc Farms, HelthWyzer, NooSkins, and RejoovenEsense represent the apex of these biopolitical institutions that govern, commodify, and completely redesign biological life. The novel demonstrates how corporate entities actively govern and redesign biological populations through such profound manipulation and commodification of life, where transgenic host pigs whose official name was *Sus multiorganifer* are harvested for human organs (25), "NeoAgricultural" products like "ChickieNobs" grow meat without a whole animal (237-238), and corporate security forces like CorpSeCorps use aggressive biological and neurological surveillance, subjecting individuals to iris scans and "hooked up to neural-impulse monitors" to detect lies (232).

Oryx and Crake displayed the apex of biological control through the Paradise project. This aims to manage and control human evolution and the reproductive system by substituting human and nonhuman entities with proprietary engineered beings, called "floor models" (Atwood 355). By eliminating human limitations such as sexual jealousy, grief, and religious impulses, Crake positions himself as factory manager and produces Crakers to fit within the artificially created environment. This transhumanist ideology often highlights the contradictions like perfection often comes at the cost of individual agency. This unchecked biotechnological laboratory culminates in global biowarfare through distribution of the BlyssPluss Pill—a drug that is marketed to "eliminate the external causes of death" (345) but secretly unleashes a genetically engineered "worldwide plague" known as "the Red Death" designed to eradicate the human population (381). Posthumanist N. Kathrine Hayles's concept aligns with this biopolitical logic by illustrating how power over life becomes possible when life is limited to information that can be manipulated. The posthuman condition privileges "informational pattern over material instantiation, so that embodiment in a biological substrate is seen as an accident of history rather than inevitability of life" (2). This bridges to biopolitics: life reimagined as pattern rather than flesh becomes computable, transferable, optimizable.

Timothy Lenoir's techno-humanism positions bio-media as infrastructure for transhumanist governance. The cyborg is not a technological artefact but "product of technoscientific processes and signifier for those processes themselves" ("Techno-humanism"198),

demonstrating how biology, information systems, and technology become entangled. This convergence is what Atwood's novel foresees: corporations operate as bio-mediatic regimes combining digital research networks, capitalism, and genetic science, turning life into a proprietary, programmable medium.

Emergence of Ecological Amnesia

The rise of ecological amnesia starts from the inherent limitations of biotechnology. In *Oryx and Crake*, Crake serves as the metaphor for this systemic failure. His failure to connect ecological wisdom with bioengineering species leads to ecocide, because these engineered species cannot integrate into a balanced ecological cycle. According to Bernard Stiegler, this is the "exteriorization of memory into technical objects and living substrates, a process that constitutes the very condition of becoming for biological and cultural life" ("Technics and Time" 135). As a result, the organism becomes a "material information entity" identified by a patent number, ensuring that "evolutionary history is not supplemented but overwritten by financial specifications," resulting in what Stiegler calls "proletarianization; the loss of knowing how and knowing how to live" ("For a New Critique" 45).

This rupture is complicated by the simulation of commons, where biopolitical enclaves replace managed certainty for embodied, multispecies relationality. The atmosphere of this central park is built around "the top of Crake's charmed dome visible above the trees, round and white and glaring, like a bubble of ice" (Atwood 267). Because the friction of lived experience is removed in these "bubble-domes," a disconnection from local ecological knowledge results, where sanitized predictability is traded for "lived knowledge," which normally "emerges from friction—from risk, error, and the embodied consequences of both" (Roberge & Castelle 99).

The consequences of this mechanism are profound cultural and ecological fragmentation. Culturally, the optimized Crakers are a dead end, because engineering removes jealousy, grief, and vulnerability, creating "pre-ethical" beings who lack the struggle required for ethics. The Crakers are still essentially hollow because "the ethical relation begins with the encounter with the other's suffering"; they do not have the "precarity" or "exposure to the other's vulnerability" that Judith Butler defines as the "condition of possibility for non-violent ethics" (Levinas, *Totality and Infinity* 215; *Frames of War* 14). From an ecological perspective, this logic led to artificial species that are "not life forms with intrinsic value but 'material information entities', fully formed, bypassing the 'feedback loops' that link technologies to historical change" (Lenoir, "Make-Believe" 314; Hayles 17). When the Red Death plague strikes, these systems collapse because they lack the evolutionary backlog necessary to

withstand novelty, leaving the engineered world as nothing but “corpses and rubble” (Atwood 404).

Engineered Species as Proprietary Technology

In *Oryx and Crake*, the hybridity of technology and discourse is portrayed through a “sterile blueprint” wherein the Pigoons and ChickieNobs are not life forms with intrinsic value but are “material information entities” (Lenoir, “Techno-humanism” 314). This erasure is foundational to ecological amnesia, for as Hayles notes, “Abstracting information from a material base meant that information could become free-floating, unaffected by local variations of time and space” (22), achieving a state where the body is merely “prosthetic” (5). OrganInc and RejoovenEsense do not supplement nature but systematically replace it with a proprietary version, where evolutionary history is erased in favor of engineered functionality.

Engineered species act as a technological reset because they lack a genetic memory of natural selection. Natural systems are autopoietic—they see the world through their own “systemic organisation,” which is built over time (Hayles 13). In contrast, engineered species tend to be “fully formed,” bypassing the “feedback loops” that link technologies to historical change (17). The erasure of evolutionary history reflects the cybernetic shift towards perceiving systems as “autonomous agents running programs” rather than being “originary guarantees and teleological trajectories” (286). Cultural AI Studies suggest that these systems produce “order by exteriorizing the disorganization against which it is mobilized” (Roberge & Castelle 207), where disorganization is the unpredictable and slow process of natural evolution.

The Crakers as Ecological Replacement

In Atwood’s *Oryx and Crake*, Pigoons and ChickieNobs represent artificial proprietary species for substitution; meanwhile, the Crakers manifest as an ecological reset by replacing Homo Sapiens with an artificial organism which survives within a post-apocalyptic environment. Crakers embody ecological erasure, highlighting the supremacy of abstract information over evolutionary embodiment. Hayles posits that “abstracting information from a material base” allows it to become “free-floating, unaffected by changes in context” (22). Crakers exemplify this, as their genome was developed in a controlled setting devoid of human historical noise such as trauma and culture, signifying the total replacement.

Hayles's warning becomes acute here:

What is lethal is not the posthuman as such but the grafting of the posthuman onto a liberal humanist view of the self. When Moravec imagines "you" choosing to download yourself into a computer, thereby obtaining through technological mastery the ultimate privilege of

immortality, he is not abandoning the autonomous liberal subject but is expanding its prerogatives into the realm of the posthuman (Hayles 287).

The Crakers do not co-evolve but replace existing ecosystems, creating a closed ecosystem rather than inheriting an existing one. Applied metaphorically to Crake's bioengineering, both machine learning regimes and these corporate models externalize disorder to create order, creating "order by exteriorizing the disorganization against which it is mobilized" (Roberge & Castelle 208). The Crakers cannot learn from the ecosystem because their knowledge is pre-installed, much like an AI trained on a sanitized dataset, resulting in an ecological amnesia where Snowman's sorrow remains the voice of that forgotten memory.

What Is Lost: Multispecies Relationality

Hayles's theory explains how life becomes "decontextualized construction" when species are engineered in real time (22). The evolutionary process is no longer important, disconnecting the memory of species from the physical environment. Biological substitution leads to profound loss of living knowledge and cultural continuity, known as semantic amnesia. Snowman's struggle to remember the names of plants and animals represents his fight against this "erasure of embodiment" (Hayles 5).

When the physical context is replaced by the simulated version, living knowledge evaporates because meaning-making is "abstract social relations from the original activity" (Roberge and Castel 99). The lack of authentic social and environmental connection makes culture a hollow simulation. This phenomenon, called proprietary substitution, constitutes "ontological violence," which highlights a change from being to proprietary mirrors posthuman desire to manage life as resources (Hayles xiv). Such violence emerges when an organism is reduced to a mere "pattern independent of specific material medium," often to facilitate capitalist growth.

Ecological Disconnection

The transhumanist approach to nature faces a significant crisis because of its mechanical ontology, which perceives the existing biological history of the ecosystem as a machine. According to Rosi Braidotti, "advanced capitalism is a spinning machine that actively produces differences for the sake of commodification" (The Posthuman 58). This reductionist perspective considers individual species as discrete, replaceable components rather than interconnected entities in an evolutionary network. Atwood represents this perspective through the dismissal of the intrinsic value of ecological history: "I don't believe in Nature either," said Crake. "Or not with a capital N" (242). When bioengineering separates specific species from their evolutionary lineage, it breaks interconnected dependencies, transforming

a resilient ecological network into a fragile, artificial assembly line prone to sudden systemic collapse because engineered organisms lack "ecological memory."

This ecological isolation is exemplified in the Crakers, herbivorous humanoid organisms engineered to avoid the environmental footprint of human civilization. However, *Oryx and Crake* reveals that this oversimplification separates the Crakers from a functional food web. While Crake represents intellectual wisdom in laboratory planning, he deeply lacks true ecological wisdom, creating low-impact biological features in isolation rather than fostering dynamic ecosystem relationships. As N. Katherine Hayles argues, "the posthuman view privileges informational pattern over material instantiation, so that embodiment in a biological substrate is seen as an accident of history rather than an inevitability of life" (*How We Became Posthuman* 2). Furthermore, Bernard Stiegler warns that the "exteriorization of memory into technical objects" without embodied knowledge results in "proletarianization"—the loss of "knowing how to live" ("For a New Critique" 33-34).

The creation of lab chimeras further accelerates the destruction of ecological interconnectedness. Labs create hybrid species such as Pigoons and Wolvogs for immediate corporate utility. For instance, the Pigoon was designed for organ harvesting: "The goal of the Pigoon project was to grow an assortment of foolproof human-tissue organs in a transgenic knockout pig host" (Atwood 25). When these chimeras escape into the wild, they disrupt predator-prey dynamics depending on co-evolved behaviour, as the Wolvogs exploit a biological gap in local defences: "It hasn't taken much to reverse fifty thousand years of man-canid interaction" (125). Isabelle Stengers argues that modern science lacks value except "to the extent that it communicates with the event of a successfully created relation" (67). Their unmediated introduction shatters the memory of the ecosystem, shifting the natural balance toward ecocide.

When genetic engineering is divorced from its evolutionary context, it leads to an ecological amnesia where a modified environment lacks its evolutionary memory for self-regulation. When Wolvogs, Pigoons, and Crakers interact with the natural world, they demonstrate that biological elements cannot be detached from historical lineage without causing systemic failures. As Rob Nixon argues, such destruction is often a form of "slow violence"—"a violence of delayed destruction dispersed across time and space" (2). Crake confidently asserts, "But they won't get out. Nature is to zoos as God is to churches" (Atwood 202). Ultimately, when biotechnology treats life as a modular program rather than an interconnected web, it leads to ecocide rather than progress.

Emergence of Ecocide

To understand corporate science in Margaret Atwood's *Oryx and Crake*, one must define ecocide. Legal scholar Polly Higgins defines ecocide as "the loss, damage, or destruction of ecosystems" (258). It is the deliberate systemic destruction of ecosystems threatening their survival. Crake's efforts to fix the planet stem from absolute optimisation, viewing biological history as errors to eradicate. As Hayles observes, "The great dream and promise of information is that it can be free from the material constraints that govern the mortal world" (*How We Became Posthuman* 13). Utopian paradise is thus structurally dependent upon the death of the old world. Corporate ethos treats the living earth as raw material to replace with a proprietary system, driving widespread damage through modular commodities.

In *Oryx and Crake*, the BlyssPluss Pill, part of the Paradise Project, serves as a mechanism for ecological displacement. It is designed to enhance human performance while covertly causing sterilization, thereby connecting corporate interests to environmental degradation. By leveraging RejoovenEsense's distribution, Crake intertwines corporate greed with ecological degradation. The concept of BlyssPluss is described as follows:

The aim was to produce a single pill that a) would protect the user against all known sexually transmitted diseases... b) would provide an unlimited supply of libido and sexual prowess... c) would prolong youth. These three capabilities would be the selling points, said Crake, but there would be a fourth... The BlyssPluss Pill would also act as a sure-fire one-time-does-it-all birth-control pill, for male and female alike, thus automatically lowering the population level. (Atwood 346-347)

Crake weaponizes biopolitics and capital by utilizing the pill for human elimination. Combining a contagious pathogen with a lifestyle product creates a rapid disease wiping out civilization. This plague constitutes ecocide for three reasons: it eliminates *Homo sapiens* as a keystone species, spreads through a world rendered vulnerable by ecological amnesia, and collapses the engineered environment alongside its creators. The BlyssPluss Pills symbolize the conflict between transhumanist optimization and ecocidal destruction. This depicts that biological eradication is necessary for population management.

The violent displacement illustrates the separation between sterile corporate compounds, isolated from environmental degradation, and biological decay. In contrast, the pleeblands are characterised as vast, contaminated urban sprawls inhabited by the unenhanced population, who suffer in a landscape plagued by environmental degradation, toxic waste, and chaotic commercial exploitation. This stark juxtaposition reveals not only socioeconomic disparities but also acts as a reflection on broader ecological and societal ramifications following catastrophic environmental degradation.

This story depicts the post-apocalyptic wilderness shaped by the BlyssPluss pathogen's release, representing the collapse of Crake's vision of sterile paradise. As Snowman travels the ruins, he finds it looks like a cemetery filled with decaying remnants and aggressive transgenic species caused by the corporate landscape. The ecological void illustrates how synthetic intervention has led to ecocide. That destroying evolutionary history and substitutes it with corporate waste and laboratory creation. This impact underlines the possible threat to biological diversity and ecological integrity essential for sustaining ecosystems.

Finally, the shift from corporate optimization to a global ecocide highlights the peril of threatening the planet as a machine. Crake's world represents a violent erasure that takes away the planet's ability to self-regulate. As Melinda Cooper argues, the neoliberal bioeconomy treats life as a resource without limits, working to transcend "all limits to growth—from waste products to the finitude of the earth" (18). Ecocide is a fulfilment: transcending limits by destroying whatever exceeds optimization. *Oryx and Crake* warns that bioengineering driven by optimization and control ultimately destroys the biosphere.

Global Governance Frameworks and the Gap of Ecological Memory.

The 2025 IUCN Synthetic Biology Policy

The International Union for Conservation of Nature (IUCN) formulates the first global governance framework on synthetic biology and natural conservation in 2025. This policy recognizes "different applications of synthetic biology may have significant positive and negative impacts on the integrity and diversity of nature" (International Union for Conservation of Nature 2). This policy is an advocacy of the principle of balance that not only acknowledges precaution but also allows for innovation. This framework requires the inclusion of indigenous people and local communities through the "principle of Free, Prior and Informed Consent" (5). IUCN policy is fundamentally focused on short-term project cycles and immediate ecological impact assessments. It does not consider long-run ecological impact and historical memory loss, specifically, the erasure of evolutionary lineages, adaptive feedback loops, and the erasure of ecological relationships with humans, animals, and the environment. Ecological memory ethics offers an important tool by applying caution through deep-time memory, mandating that synthetic biological intervention must align with continuity of the ecosystems it impacts.

The Nagoya Protocol and Digital Sequence Information

The dissection of genetic sources from physical substrates is evident as a modern legal debate. The source material reflects the industry perspective that Digital Sequence Information (DSI)

is not within the scope of the Convention on Biological Diversity (CBD) or the protocol, because the definition of genetic resources relates to genetic material and not abstract information” (International Chamber of Commerce 2). DSI technology allows genetic information to be accessed digitally without physical samples, effectively severing genetic resources from their material and ecological substrates. Such technological shifts reflect Atwood’s laboratories in *Oryx and Crake*; Pigoons and Crakers are considered as material information entities identified by patent numbers, separated from ancestral lineage and ecological alignment. Ecological memory ethics argues that DSI governance should expand beyond benefit-sharing fairness to address the epistemic violence associated with information extraction. Under EME, any biotechnological development utilizing DSI should include an Ecological Memory Impact Statement to evaluate its effects on the genetic makeup, adaptive capacity, and relational ecology of source populations. Protecting genetic resources requires safeguarding not just the data, but also the ecological histories that produced that data.

The Kunming-Montreal Global Biodiversity Framework

The Kunming-Montreal Global Biodiversity Framework ensures that “at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration, to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity” (Kunming-Montreal 9–13). This framework considers biodiversity integrity as goal A. That emphasizing the maintenance, enhancement, or restoration of ecosystem integrity, connectivity, and resilience, as well as “the abundance of native wild species is increased to healthy and resilient levels” (8). It recognizes the crucial role of “indigenous peoples and local communities as custodians of biodiversity, addressing diverse value systems, including the right of nature and Mother Earth (5). However, it is affected by the blind spot of a fundamental definition. What counts as biodiversity that is worth protecting? Atwood’s novel offers a diagnostic thought experiment questioning whether the inclusion of new humanoid species like Crakers in KMGBF’s protection goal indicates conservation success. Clearly not, because Crakers were deliberately created through the eradication of *Homo sapiens* and their associated ecology and cultural systems. The KMGBF framework currently lacks the normative ethical principle to distinguish between enriching ecological memory and replacing it with engineered substitutes. Ecological memory ethics reframes KMGBF’s goals to focus on the preservation of ecological memory integrity rather than simply species counts or habitat areas.

Ecological Memory Ethics as a Governance Framework

Ecological memory ethics posits that ecosystem species and trans-species relationships have an inherent right to their evolutionary memory, relational history, and adaptive continuity. Memory is conceptualized not only as a metaphor but as a biological and relational mechanism that enables life to maintain temporal continuity. Khalighi et al. describe: "An ecosystem is said to exhibit ecological memory when its future states do not only depend on its current state but also on its initial state and trajectory" (1). This systemic memory relies on "information and material" legacies, where the life-history traits of species serve as adaptive responses to disturbance and constitute an informational legacy.

EME integrates Rosi Braidotti's concept of zoe-centered egalitarianism and Stengers' notion of slow science. Braidotti critiques advanced biocapitalism, emphasizing how corporate laboratories commodify and reduce the diverse and historical essence of non-human matter into mere data lines. Stengers' *Another Science Is Possible* presents a structural and political counter to the pervasive trend of rapid, insular research. She challenges fast science, underscoring its failure to consider historical context and environmental complexities in the pursuit of quick profits.

Operational Requirements

Corporate Biotechnology

By drawing on Braidotti's critique of biocapitalism, ecological memory ethics firmly rejects profit-driven genetic modification and commodification. Braidotti describes biocapitalism as a system that "engenders a perverse form of the posthuman" (110). Stenger further supports this concept and advocates research that goes against "the imperatives of gaining time, competition and speed" in return on investment (36). Stenger also gives significant attention to the transition from proprietary corporate control to long-term stewardship over short-run profit. This analysis highlights the need for ethical adaptation in biotechnological practices.

Genetic Engineering

Based on Braidotti's notion of "nonunitary, expanded relational self," which is "embodied, embedded, and symbiosis with material self" (65), ecological memory ethics rigorously advocates for the stringent examination of genetic modification and its impact on long-term ecological sustainability. Furthermore, Stengers' work suggests slowing down scientific activities to protect the interconnectedness of ecosystems (30). This methodology actively promotes the preservation of evolutionary diversity that has been built over historical periods.

Synthetic Biology

By taking the reference from Braidotti's analysis of "binary opposition between the given and constructed" (3) and her calls for "transspecies solidarity" (92), ecological memory ethics formulates the ethical guidelines for genetic modification and ecological redesign. As in Stengers' analysis against "accelerated production of novelty" without historical consideration. Ecological memory ethics assumes that synthetic life forms must respect, enhance, and support multispecies relationality, rather than just building engineered alternatives. This perspective might help to acknowledge a thoughtful approach towards ecological intervention, and also to emphasize the importance of respecting and integrating with the existing complex web of life.

Environmental Governance: Based on Braidotti's critique of "advanced capitalism and its biogenetic technologies" (7), the ecological memory ethics' primary aim is to dismantle market-driven optimization. Stengers calls for scientific practices denying "the blackmail of efficiency" and promoting a "the power to slow down" framework that rejects numerical asset measurement (52). This research aims to redefine biodiversity as a complex, interconnected, and interdependent web, enforcing strict accountability for ecological disruption over evolutionary time scales.

Real-World Implications

Margaret Atwood's literature connects with contemporary technoscientific mechanisms as a fictional speculative narrative that extrapolates recent trends like corporate structure and scientific practices to their extreme outcomes. Corporate labs in *Oryx and Crake* mirrors the practices of contemporary corporate laboratories such as CRISPR, synthetic biology, and the commercialization of life science. Isabelle Stengers highlights "the knowledge economy is now destroying the home in which the goose that lays the eggs was protected" (110). This underscores the lack of ethics that support long-term ecological sustainability over profit. Modern biotechnological trends align with transhumanist ideologies that lead to ecocide.

When corporations use bioengineering for human profit, there will be the possibility of repeating the mistake made by the crack. This is neglecting the historical and ecological context of natural populations. Adopting bioengineering through anthropocentric paradigms, a profit-oriented approach may lead to the creation of synthetic organisms that break the natural predator-prey chain. Braidotti notes that "the posthuman nomadic subject is materialist and vitalist, embodied and embedded" (The Posthuman 188). To address these challenges is crucial to move from anthropocentric bioethics to biocentric structure. This framework prioritizes health and self-regulation of the entire biosphere, rather than market demand and scientific ambition.

Crake's downfall stems from radical humanist mastery—treating the ecosystem as a collection of flaws to be corrected while ignoring human dependency on evolutionary history. As Stengers suggests, “slowing down means becoming capable of learning again, becoming acquainted with things again, reweaving the bounds of interdependency” (Atwood 77). Viewing the natural world merely as a mechanical system to be optimized for capitalist consumption proves fundamentally ecocidal.

Conclusion

This paper examines how Atwood's *Oryx and Crake* exemplifies ecological amnesia through biotechnological practices. Crake's perception of enhancing human issues with transhumanist notions overlooks the interconnectedness of human and nonhuman agencies with ecology. Crake's engineered species such as Crakers, Pigoons, and ChickieNobs cannot function within the natural ecosystem, leads to ecocide. Red Death plague emerges as a result of biotechnology that ignores the inherent interconnection with humans, animals, and ecology. The paper proposes ecological memory ethics as a governance mechanism to reduce the perils of biotechnology. Ecological memory ethics aims to preserve evolutionary memory, multispecies relationships, and ecological interconnectedness. In *Oryx and Crake*, corporate labs, including OrganInc and Paradise Project, use DNA as data patterns to program artificial humanoid species that replace life with information. This concept leads to the shift from historically based natural existence to a commodified biological product like Pigoons. This changes evolutionary lineage into an information system for organ harvesting. Furthermore, the character of Crakers is portrayed without emotional depth and memory. This engineered product disrupts cultural connection and ethical norms.

Ecological amnesia leads to ecocide by destroying ecosystems and loss of biodiversity. The Blysspluss plague represents a system that supports systemic optimization rather than ecological sustainability. *Oryx and Crake's* depiction of a post-apocalyptic scenario represents not only failure of transhumanism, but also its success in exceeding biological limits at the expense of ecological integrity.

The paper used ecological memory ethics as a normative framework designed to resist ecological amnesia and ecocide. Grounded in Rosi Braidotti's zoe-centered egalitarianism and Isabelle Stengers' notion of slow science philosophy, ecological memory ethics establishes that the ecosystem and species have their embedded right to their evolutionary history. This ethics challenges traditions such as life patenting, demanding ecological integration assessment for genetic modification. It regulates synthetic biology and redefines biodiversity as an interconnected web.

Primarily, this paper extends relational self within critical posthumanism, using speculative fiction to critique practices such as CRISPR that lack ecological accountability. It provides a framework for policymakers to evaluate biotechnological interventions based on their effects on evolutionary continuity. Future research may use ecological memory ethics to real cases of genetic engineering to compare with eco-dystopian fictions.

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